

ABSTRACT

A compound semiconductor epitaxial substrate having a pseudomorphic high electron mobility field effect transistor structure which comprises an InGaAs layer as a channel layer 9 and an InGaP layer containing n-type impurities as a front side electron supplying layer 12, wherein an electron mobility in the InGaAs layer at room temperature (300 K) has become $8000 \text{ cm}^2/\text{V}\cdot\text{s}$ or more by growing an epitaxial substrate having a pseudomorphic HEMT structure with an In composition of the channel layer 9 increased. Front side spacer layers 10 and 11 between the channel layer 9 and the front side electron supplying layer 12 may also be InGaP layers.